

# Aviation News

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**Trophy Winner:** Dr. Luis Alvarez, developer of the radar Ground Control Approach system, has been awarded aviation's highest civilian prize, the Robert J. Collier Trophy for outstanding contribution to aviation. Dr. Alvarez, shown here examining a magnetron, a key part of all radar, will receive the Collier Trophy tomorrow at the White House from President Truman, acting on behalf of the National Aeronautic Association which administers the award. (Story on page 7).

# THE *New* HONEYWELL ELECTRONIC

## Fuel Gauge



### THE TANK UNIT...

The tank unit is the last remaining part of the system. It consists essentially of three concentric tubes, tightly fastened together by a securely mounted nut from each other. The outer tube serves as a support and protecting shield for the other two, which form the two pieces of a condenser. A float is provided in one end of the assembly for measuring the rise in the tank. The rigid construction of this unit and the absence of any moving parts or electronic components eliminate the accuracy for any airplane beyond an occasional inspection.

### THE POWER UNIT

Aids from the tank unit and the indicators, all electrical components are contained in the power unit which consists of an amplifier and a condenser unit mounted together on one rack. The remaining rack is not required if a variable shield or rack is provided in the equipment. The amplifier may be easily detached from the condenser unit for inspection, service, or replacement without disturbing calibration of the system. Adjustments for both input and feedback are provided in the calibration unit. Full calibration is easily accomplished in the time of installation by merely connecting a standard calibrating condenser between two terminals in the calibration unit. This convenient method eliminates the necessity for filling the tank and jacking up the wings to calibrate each installation.

The indicator, which is designed for instrument panel mounting in a 3 1/2 inch opening, requires full quantity in gallons at 77 degrees F. The scale is provided by a single stationary disk which provides the pointer and the two moving pointers through a 170-mil steel plate. This solid reduction prevents the indicator from responding to mechanical vibration or shaking of the fuel in the tank. The indicator operates fast enough to follow any normal change in fuel level and is so accurate it measures changes as small as 1/2 inch. The scale on the indicator due to 170-mil steel body and occupies five-tenths of the disk circumference. (The scale may be calibrated in pounds instead of gallons if desired.)

Minneapolis-Honeywell Refrigerator Company, 3550 Fourth Avenue South, Minneapolis 5, Minnesota. Distributing offices in all principal cities.



### THE INDICATOR



MINNEAPOLIS  
**Honeywell**  
CONTROL SYSTEMS



CREATIVE ENGINEERING  
Div. of the General Electric  
Corporation, and an Equal Opportunity Employer

## THE AVIATION NEWS

### Washington Observer



#### CRACKING DOWN ON THE LITTLE FELLOW

The country's small fixed base charter and air taxi operators are worrying about the attitude of the new director of CAB's Safety Bureau, William S. Dowson. They feel that the recently circulated proposals which would reduce air taxi regulations are only the beginning of trouble for them. Many expect to be forced out of the air taxi business, citing the director's remarks at a closed meeting he held with the airlines in Washington on Oct. 18. At that time, he turned notice that the Bureau would place heavier restrictions on the little fellows, "those with the least facilities and capabilities." At the same time he promised to give every break to the scheduled airlines "with the most qualified personnel and facilities." The small air taxi operators point out that this policy not only fails to recognize the perfect safety record many of these people have, but would deprive the public of charter service at hundreds of small airports in the country where twin-engine planes cannot operate.

**TRUCKERS SYMPATHIZE WITH AIRLINES**—In an unpublished report to the House Interstate and Foreign Commerce Committee, the American Trucking Association, Inc., takes a hefty shot at ICC policies. The association has been subjected to and expresses sympathy toward the airlines' opposition to regulation by this agency. The transportation subcommittee is making a survey to determine requirements for new legislation. The truckers' spokesman charged the railroad with pursuing a "calculated and destructive policy" toward his industry "with the full knowledge and permission of the ICC."

**AAF HANDOUT FAMINE**—Army Air Force's current economy drive, a handout from Gen. Spotts, 30 percent personnel cut, has his Public Relations with a vengeance. The Office of Information Service will be abolished and the Public Relations staff will be slashed in half by Jan. 1.

**"THE PEOPLE NEVER LEARN"**—Lieut. Gen. Ira C. Eaker, Deputy Commanding General of the AAF and presently opposed to the likelihood successor to Gen. Spotts, has indicated to close friends that he will definitely refuse before the end of next year. Eaker, a veteran of the badge-saved pioneer Air Corps era, is disgusted with current economy waves that make it impossible (even after a global air war) to maintain and operate an air force worthy of the name. The economy, he says, will never learn the value of an air

force. Unless Eaker should serve only a short time as AAF chief, before stepping out, his retirement would boost the neck of Gen. George Kenney, present Strategic Air Force commander, to Spotts's successor.

**JET STANDARDS SET**—Aeronautical Board has adopted standard Army-Navy specifications for jet engines and will discuss them shortly, with specs for turbo-prop engines to be ready about Jan. 1. This is the first tangible result of the speed-up in government-industry cooperation on standards which was announced jointly by the Army and Navy last week. With Aircraft Industries Association strong in the industry liaison, the Board will review and revise Army-Navy specs to keep them up to date.

**FOREIGNERS VS. THE FOLKS AT HOME**—U. S. air transport applicants who have wound up in three years for action and spent untold thousands of dollars in pursuing their cases, are composing their resentment with that given foregoon. Norwegian Air Lines has issued a foreign air carrier permit two months after its application was made, and the Board held a hearing on British Commonwealth Pacific Airlines' permit request the day after it was filed.

**CAB AGENDA CLOGS UP**—Civil Aeronautics Board is losing ground in its struggle against a huge backlog. There were 1100 cases pending Nov. 30, compared with 520 on June 30 and 568 on March 31. Since July 1 applications have increased sharply. From March through June the Board received about 31 new applications a month. From July through November the average shot to 66. CAB's limited personnel has been overwhelmed.

**SUBSIDY BUGABOO AGAIN**—Stewardship spokesmen have quietly gathered ammunition for the propaganda battle on Capitol Hill and in the press on aviation subsidies. They expect that to increase chances for legislation which will permit them to enter aviation. The result is likely to be a free-for-all which will dismantle all transportation, since air, rail and ownership services either are receiving or have received government aid at some stage of their development, which was deemed at the time to be in the public interest. Worry of the airlines is that the new subsidies may build up a public record which will give further encouragement to advocates of government ownership of all common carriers.





## PLIOCELS hold more gas—weigh less!

More and more designers of modern aircraft are specifying PlioCell fuselage tanks to achieve maximum gas capacity with minimum weight. Developed by Goodyear Research, PlioCells are made of specially treated, gas-tight, nylon fabric and weigh only .855 pounds per square foot. They are leakproof, having no rivet seams or welded joints to work open, and being section heavier metal tanks. In aircraft tests they have withstood extreme punishment without damage, and are approved

by G.A.A., Army and Navy. The Aircochets winner of the Thompson Trophy race, the "Toucanet Turtle" and the "Dreamboat," all of current fame, used PlioCells for weight-saving and increased fuel capacity. PlioCells can be built to fit spaces of all sizes and shapes, permitting gas storage in locations heretofore impossible or impractical, increasing fuel load. For complete information write: Goodyear, Aviation Division, Akron 16, Ohio or Los Angeles 34, California.



MORE AIRCRAFT LAND ON GOODYEAR

THAN ON ANY OTHER KIND

Circle 12 on Reader Service Card

## Collier Trophy Award to Alvarez Spotlights GCA Development

Instrument landing system controversy stirred by AAF report and Aeronautics test urging immediate use of integrated aids.

By WILLIAM KROGER

As evidence continues to mount that the ground controlled approach radar landing system holds most promise for immediate solution of the bad weather landing problem, award of the Robert J. Collier Trophy to Dr. Luis W. Alvarez for his development of GCA, or soon or perhaps putting the kibosh on that system's claims.

Historic role of the 35-year-old trophy has been in focusing attention on solid accomplishments which often have been controversial at the time of the award, but which later became standard in applications: first amphibian, gyro-compass control, controllable pitch propeller, air-cooled engine, twin-engine airplane.

► **Problem of Fresh-Arrival**—Announcement of the award to Alvarez comes at a time when emphasis on the bad weather landing problem has reached a new peak. A joint government-civilian experiment in landing aids at Alameda, Calif., re-

sulted in a report which urgently recommends that "those agencies directly concerned with flight regulations take such steps as may be necessary to approve, sponsor, and encourage the use of an integrated landing aid system," of which GCA could be a part. Cost of an integrated system including lights and fog dispersal would be \$300,000-\$450,000. In a single 90-day period this year bad weather caused airlines a loss of \$1,783,000.

In the search for a solution to the landing difficulty, more and more faith is being placed in GCA. The heavily-travelled North Atlantic route will be all GCA. A long-banned AAF report on the experience of various groups of pilots on GCA and CAA's instrument landing system gives a definite nod to GCA.

In the field of actual use, as distinct from reports and recommendations, GCA is showing additional promise. It is the standard landing system of the

Navy. It is being installed, as an alternate to ILS, at New York, Washington and Chicago. Greater and Greater Airports, principal terminals of trans-Atlantic operations, are installing GCA. Pan American Airways, TWA and American Overseas Airlines are checking out their pilots on GCA.

► **Five Years Old**—When Luis Alvarez receives the trophy tomorrow from President Truman, acting on behalf of the National Aeronautics Association which administers it, it will be nearly five years since the first demonstration of the system in Jan., 1942. Alvarez, now 39 and a physics professor at the University of California, went to work at the radiative laboratories at the Massachusetts Institute of Technology in 1944. While working with radar, he conceived the idea of utilizing the "interrupted beam" phenomenon to aid in landing. He was in the plane that made the first operational landing in England, in Aug., 1945.

Throughout the balance of the war, GCA was used by the Navy, AAF and the CAF at first slowly and on a small scale. Later, on two Jeros, it was almost a standard procedure. Warfare secrecy was lifted in the Fall of 1945 and the controversy over the merits of GCA and ILS began taking shape. GCA's benefits, however, were ad-



GCA Diagram: Drawing of Ground Control Approach System manufactured by GEHLE Bros. for the Army. The 30-ml. beam is used to "talk" the plane into the ap-

proach zone, from where it is guided down to the runway with the course indicated on the two precision scopes.



## Airlines Are Facing Charge for Airways

Government is press for levy from scheduled carriers to pay partial cost of airways operation.

The Air Transport Association, presently striving to trim its budget for the next six months by operational and travel cutbacks, is confronted with a new airline financial problem in a federal proposal that its member airlines be asked on to help pay the cost of air navigation facilities.

This often-discussed suggestion reached its most concrete form at the month's meeting of ATA's membership, where it was outlined by top talent from Government air agencies, including Chairman James M. Lunde of CAB, ATA Administrator T. P. Wright of CAA, Assistant Secretary of Commerce for Air William M. McEwen, and Bureau's assistant, George Burgess.

The membership meeting followed a session of the Association's board of directors at which the trend towards budget reduction was evident in the discussion of ATA's Labor Relations Department agreement to hold fewer committee meetings, and a decision to pass the budget along to press. Kenneth R. Lund for determination of what further cuts could be made.

**Budget Cuts.**—The budget for the first half of next year runs between \$450,000 and \$500,000 (Antitrust issues, Dec. 23), reflects of approximately \$100,000 for the important Air Navigation-Traffic Control Division. Elimination of the Labor Relations Department, whose work will be taken over by the airline negotiating conference, is expected to save about \$25,000 a year.

The "surprise" "pay-you-ways" proposal has been under study at ATA for some time, since it involves questions of rates of payment and collection of charges and, particularly, the ability of the airlines to pay such charges.

The policy of levying part of the costs against the airline users is not discouraged, but officials of the problem feel that the airlines could not stand financially the burden which would be imposed by full allocation of their share of the annual airways operation cost. Even a token charge would be a hardship unless load factors improve and operating costs drop.

Under their upward trend—unusually prospering in view of the current economic programs.

**Ward.**—The Government flight, now costs are rising, load factors are dropping, and the scheduled airline industry is facing a period of competition with unsubsided and foreign operators. This is bound to bring pressure for lower rates. Feeling among the airlines is that such payments cannot possibly begin before the summer of 1946.

Either of two methods of collecting the proposed user charges is seen as the more likely. One of these through gasoline taxes, the other through gross revenue tax. The Government opinion favors the latter.

The gas tax method is criticized for the possibility that it might become rigid and hard to adjust downward, with a tendency towards acceptance as a contribution to general revenues instead of payment for a special service. CAA, it is noted, has proposed that the taxation of aviation fuel be left exclusively to the Federal Government, with taxation of highway motor fuel a state prerogative. In the step to follow, the airlines probably will look more kindly on gasoline taxes as a method of collecting user charges.

Right now it is felt that the advantage would be with a limited gross revenue tax, which would vary with traffic volume and make it easier to maintain identity of the payments as a user charge.

**Pay Rate Compared.**—Analysis has shown that from the standpoint of the airlines' ability to pay, the maximum amount they could

stand in their present status would be the equivalent of 4 to 5% of a net per gallon of gasoline depending on load factors.

The membership meeting elected as directors C. B. Smith, American; T. E. Brewster, Bessell; C. Belli Moore, PCA; C. E. Wachsen, Delta; E. V. Tichenor, Eastern; J. H. Tripp, Pan American; T. B. White, TWA; W. A. Patterson, United; and Joseph Garrido, Western.

The new board selected Lund as president.

## Maintenance Awards

Three airlines and one contract cargo carrier received the 1945 Airline Air Transport Maintenance Awards at ceremonies held in Black, Kansas City and Burbank, Calif.

The citation for maintenance employees of lines operating more than 10,000,000 revenue plane miles per year was presented in Kansas City to Trans World Airlines. Western Airlines, whose employees received their citation in Burbank, Calif.

Buffalo Airlines, operating between New York City, Buffalo, Rochester, Buffalo and Albany, received the award for repaired carriers, the first time such recognition has been included. Also presented for the first time was an award to contract carriers. Dick Airways, Inc., recipient of the carrier's contract cargo award, was the initial award for this category.

## Tower Service Cut

CAA is diversifying operation of 53 aeronautical communications stations and four control towers, and releasing from 35 to 16 hours the operating time of its stations. An appropriation was granted CAA for the current fiscal year for operation of 155 control towers, but it did not cover total compensation for employees so that actually the funds are not sufficient to do away completely with all towers. One being discontinued are at Bangor, Me., Altus, Tex., Red Bluff, Calif., and Waukegan, Arizona.

Daily operation of towers will be reduced to 16 hours at Albemarle, Ariz. The reduction will affect the towers at Corpus Christi, Texas, and Little Rock, Ark.

## Republic Gets Order For 500 Thunderjets

With one of the largest military orders given since the end of the war—a \$25,000,000 AAF contract for about 500 P-48 Thunderjets—Republic Aviation Corp. is engaged in trying to surmount shortages of both materials and working capital.

By last week the latter situation seemed to be clearing with negotiations being completed for a bank loan of slightly less than \$1,000,000. The lack of materials is a different matter with some instruments being so slow in delivery that they are being flown into the Farmingdale plant by T-67s.

In the face of the threatened cut in employment because of the coal strike, Republic had furnished approximately one-half of its 5,000 employees before the miners were back to work. They are expected to be back to work by the end of the week. But the expectation that materials will continue short for some time has forced the company to drop temporary plans to expand its working force by 1,100.

Tooling for low production of the P-48 has been completed and there are a number of plans now

on the line. But Republic has been living on a hand-to-mouth basis as far as materials are concerned and production is down about 80 percent.

The new AAF contract brings Republic's total backlog to more than \$18,000,000, of which \$8,000,000 is military. In addition to the P-48 and research and development work, Republic is at work on the second XP-12, four-engine, long-range reconnaissance plane, and a new restricted jet XP-91.

## Dr. Sorenson Awarded Brewer Education Trophy

Dr. F. E. Sorenson, associate professor of education at the University of Nebraska, has been awarded the Frank G. Brewer Trophy for the "most outstanding contribution to the development of sixth year in the field of education and training."

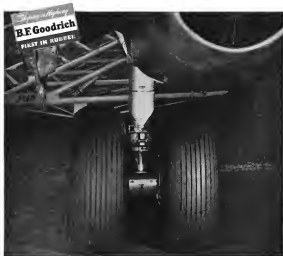
The award, made annually by the National Aeronautic Association, is designed to promote aviation education, particularly in high schools. Dr. Sorenson is co-ordinator of the Nebraska aviation education program and chairs a national committee which prepared a high school textbook, "Elements of Post-Flight Aviation."

He collaborated in the preparation of another elementary school aviation textbook.



## FRANCE'S ORANGE SQUARE

Depicted at the top of the page is a Paris scene that experimental jet-propelled technology, SO 1300, which because of its bright orange color and change shape has been dubbed the Orange Square. The three-bladed rotor with sails at the tips is driven at 300 r.p.m. by the exhaust from a 170-hp. engine. This engine also powers a three-bladed propeller pushing propeller-mounted blades and mounted in a guard ring. This small robot craft had not get from the tree of the show (McGraw-Hill News Week photo).



## Two treads are better than one

THE DEMAND for this tire has multiplied three times in five years, and there are two reasons why B. F. Goodrich recommends them. First, they are more economical than one big tire. And second, they give added safety to flying.

Tires that are often more adaptable to operation are the double. This has been proved on Lockheed's Constellation, and on such planes as Boeing's B-29 and B-52, the Boeing Stearman, and the Douglas C-54 (DC-4). Now, even ships of the ocean are being designed with twin tire landing gear assemblies, according to reports

from B. F. Goodrich's engineers.

This trend to more treads in airplane design stems from the extraordinary safety and economy record made by the big, twin-equipped ship during the war. Commercial aviation had its part in the survey and heard the report of one tire went flat, its mate held the plane safely on its course...

and wheels were protected from damage, added go-bird safety and economy.

B. F. Goodrich has advanced the use of twin tire fleet plans. Development of twin tire landing gear assemblies is welcomed by engineers everywhere as well as pilots and airway shippers. The B. F. Goodrich Company, Aircraft Division, Akron, Ohio

**B.F. Goodrich**  
FIRST IN RUBBER

## SPECIAL AIR SERVICES

CHARTER

NONSCHEDULED

INTRASTATE

### Nonscheduled Lines Eye Winter Trade

Passenger-carrying operations face rough fight for winter business this season.

By CHARLES L. ADAMS

Efforts of unscheduled airlines to tap this winter's tourist traffic along the West Coast and to the Caribbean in much the same manner as a year ago are headed for rough sailing even though they are now featuring de luxe DC-4s with bucket seats.

Several factors militate against repetition of last year's luck because for the nonscheduled carriers aside from expectations that tourist business will drop somewhat. There are, however, good prospects for all-expense, "package" air tours, which include the round-trip flight, hotel accommodations and sightseeing. Now getting its first real popularity test, this type service has not yet run afoul of CAB regulations.

**Scheduled Competition**—Unlike last year, the scheduled airlines now have plenty of equipment to handle all business coming their way. Competition, especially in Caribbean ports, will be much stiffer as the result of routes granted by CAB to its Latin American division six months ago. National Airlines and Chicago & Southern will be operating to Havana, while Pan American and Eastern have new services to San Juan.

Pan American instituted special roundtrip vacation rates between New York and San Juan several months ago, and Eastern will slash its Miami-San Juan fares scheduled on Jan. 1. Moreover, there is increased competition from foreign operators such as Latin American Venezoelas, operating Constitution from New York to Havana and Caracas.

**Orders Hit Operators**—Ten of the 22 show cause orders recently issued by CAB were directed against operations in the New York-Miami-Caribbean service who allegedly were conducting scheduled com-

mon carrier activity in violation of the Civil Aeronautics Act. Every indication points to continued close scrutiny of these operations by CAB, which last spring in the Page and Trans-Mexico decisions tightened its definition of legitimate nonscheduled service.

In view of the Board's crackdown, many unscheduled lines are now offering their services only through travel agencies which do not weaken the sense of the carrier in advertising the flights. Some companies, however, are continuing to advertise, giving no mention of times or frequency.

Included in this group are Peninsular Air Transport (New York - Miami-San Juan - Havana with DC-4s and DC-3s), Trans Caribbean Airways (New York-Miami - Havana with DC-4s), Waterman Airlines (New York-Miami-San Juan with DC-4s).

Great Continental Airlines (New York-Miami with DC-3s), Wisconsin Air Lines (New York-Miami-Kington), and Dartmouth Airways (N. Y.-New Hampshire).

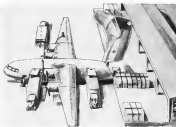
### New Cargo Service Started by Mutual

Company using C-47s on leisure route between New York City and Buffalo.

Initial flights along an intrastate all-cargo route were scheduled last week, with Mutual Aviation, Inc., Tonawanda, N. Y., fixed base operator, using three C-47s in scheduled daily service between New York City and Buffalo.

An applicant in CAB's airlift case, Mutual is conducting the operation to test new freight handling methods it proposes to use if certified. The service will also provide a thorough test of cargo potential on short hauls. Buffalo and New York being only 63 rail miles, 379 highway miles and 280 air miles apart.

**leased C-47s**—Mutual has leased six C-47s from Flamingo Air Service, Inc., New York, for 90 days



AIRFREIGHTERS VIEW MODEL OF CW-32

American Air Express Corp.'s testimony in CAB's airlift case was featured by the current display of a model of Curtiss-Wright's proposed new four-engine cargo passenger Wilbur G. Shoemaker, AAE vice-president of operations, explained the plane's characteristics. While American Air Express plans to conduct initial operations with DC-3 and DC-4 if certified, company officials say these planes may be replaced with CW-32s when they become available. In addition to offering a unique loading arrangement, the plane will permit a one-stop coast-to-coast operation at a speed east of 400 mph and total cost of about \$400,000, according to Curtiss-Wright.

and intends to replace them with two surplus C-46s, Joseph L. Henschberger, company president, said at the airfrigate hearing. Rules to be changed on the interstate run will average 19 cents a ton mile. Up to those readings, daily are contemplated.

Routes requested by Mutual in its airfrigate application include New York to Chicago and St. Louis, Boston to St. Louis, and Philadelphia to Chicago, Cleveland and Buffalo. Service would be provided with Martin 302s. Mutual plans to purchase 12 of crated units by C-46.

**Special Methods**—Cargo handling methods conceived by Mutual are especially designed for shipping small lots. Complete freight terminal facilities would be erected by the company at each of the ten cities to be served. Outboard packages would be unloaded from trucks onto a conveyor belt which would carry them to the weighing scale and to the load clerk who would check weights, mark the destination and make up the manifest.

A second conveyor would move the packages to a sorting table where they would be placed in specially-designed lightweight cargo containers marked for the various stops on Mutual's routes. Wide use of the containers would add considerable non-revenue load

per plane. Mutual estimates the loss would be balanced by savings in airplane ground time and more efficient labor utilization.

Taking the stand before Mutual, American Air Express Corp., New York, presented its case for cargo routes from New York to San Francisco and Los Angeles. AAE would operate three roundtrips daily coast-to-coast (two express and one local) with four DC-3s and five DC-4s, charging rates of 12 to 20 cents a ton mile.

**Economist Testifies**—Testifying for the carrier, Dr. Donald S. Watson, economist, estimated that average annual domestic freight traffic, between 1947 and 1949 would be \$90,906,000 ton miles at a 15-cent rate without taking perishables or parcel post into consideration. AAE hopes to fly 28,413,482 ton miles in its first year. American Air Express has been operating three DC-3s and for the six months ended Oct. 31 flew 684,000 ton miles for a \$4,718 net profit, according to John C. Lambert, president.

## CAB Cites Pilot Errors

### In Trans-Luxury Accident

Partial execution of an emergency single-engine approach following failure of the left engine in flight probably caused the crash

of Trans-Luxury Airlines' DC-3 near Molokai, HI, airport Aug. 21, a CAB accident report states.

Contributing to the mishap was the failure of the pilot to exercise sufficient caution by having a qualified mechanic determine the reasons for oil leakage in the left engine prior to the TLA plane's departure for Oahu from Chicago, the report said. Evidence indicated that a progressive cylinder crack, the primary stages of which had occurred prior to landing at Chicago, accounted for the oil leakage.

Shortly before the accelerated carrier's plane reached Molokai, the entire upper part of the cylinder broke loose; the engine failed, and the landing became necessary. Pilot and co-pilot were killed and several passengers were injured when the DC-3 crashed 1,930 ft. beyond the field.

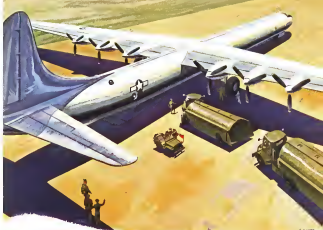
## New York Carrier Moves to Florida

Long Island Airlines, which from July 22 to Oct. 10 flew 4,000 passengers between New York City's midtown skyline and three Long Island communities, has shifted operations, personnel and equipment to Florida for the winter.

The company's four Grumman Widgeons will fly ten roundtrips daily between Miami and Bimini, Bimini Islands, furnishing the transportation for an all-expense tour. LIA will pick up passengers at their Miami hotels, take them to Bimini—where they will have eight hours of deep sea fishing and overnight accommodations—and return them to Miami for \$48.75.

In addition to the fishing tours, LIA will offer complete amphibious charter service out of Miami, according to Meyer Grum, president. F. W. Wiggins, formerly with the Central Air Command Association, Miami, has been named assistant to the president and will handle public relations.

Coincident with the start of Long Island Airlines' new operations, another Florida service provided by Skyline Land Miami, Inc. will be inaugurated. A war veteran organization which has flown extensively on the New York-Bimini-Caribbean run, Skyline will offer daily transatlantic flights between Jacksonville, St. Augustine, Gainesville, Ocala, Orlando, Lakeland, Tampa and Miami with DC-3s.



## World's Largest Propellers

### DRIVE THE B-36 SUPER-BOMBER

Groundable propellers larger than any previously produced were required to harness the mighty horsepower of the six engines powering Curtiss' Volant a great B-36 Super Bomber.

To Curtiss Wright was the task of developing for the Army Air Forces six groundable propellers which transmit to one wheel and produce its best thrust.

Like all Curtiss propellers, operation of its well conceived mechanism is unaffected by temperature and altitude changes. The constant low diameter steel blades are driven by just one

blade as through three hollow sections. Using the Curtiss automatic synchronizer, its propeller engine speeds are perfectly matched under all conditions and can be adjusted simultaneously or individually.

\*\*\*

Curtiss propellers have been specified for every new four-engine bomber and transport aircraft now in production for the Army and Navy and for the majority of the new four-engine airlines.

## Other Achievements of Curtiss Propeller Manufacturing

- FEATHERING PROPELLERS
- HOLLOW STEEL BLADES
- REVERSIBLE PROPELLERS
- AUTOMATIC SYNCHRONIZATION
- UNIT CONSTRUCTION
- SELECTOR CONTROL



# CURTISS

## PROPELLERS

CRANE & SULLIVAN



## HELICOPTER SERVICE COMES TO ARIZONA:

Airline Helicopter Service, subsidiary of Southern Arizona Airlines, Inc., Tucson, begins operations Nov. 20 with a series of demonstration flights at Phoenix. At left, the Bell Model 47 with Yale Skiff, manager of the Arizona Corporation Commission, is a passenger prepared to land in front of the Arizona State Building. Second photo shows Gov. Sidney P. Orin (left) with Eugene J. Manigault, president of the Helicopter Inc., after the state executive was flown from his home in a Phoenix residential district to the airport grounds. AHS holds Arizona Corporation Commission contracts granting exclusive rights to conduct commercial helicopter operations in the state.







Design of a new Boeing airplane is a step at a time.

### 3.9 cents per ton-mile

No transport new. Boeing can't match the versatility of the Boeing Stearman. Since can operate in low density operating cost of 3.9 cents per ton-mile. With its built design advances, the first new workhorse of aviation is destined to open important areas of profit for the entire operator and give an edge in profit margin to its users.

Boeing, last year, the double-decked Stearman will have two, the cargo space of a medium bomber, a parked capacity of more than 20 tons, a 400-mile operating range, cruising

speed of 200 to 250 miles an hour. All four aircraft conditions: cargo loads are loaded automatically, three from trucked level, the fourth by a 200-pound overhead lift. Each built is individually tested or integrated, something for the first time in shipbuilding of virtually every kind of ship or product, aircraft.

The Stearman is a twin to the Stearman. Boeing Stearman-First two, super-twin, which will go into service in 1977. Boeing Airplane Co., Inc., Seattle, Wash., Wash., Kan.

Boeing's new airplane is a step at a time.



**BOEING**  
*Stearman* FREIGHTER

The same skill in research, design, engineering and manufacture that produced

the B-27 Flying Fortress and B-27 Superfortress, now operating in Europe.

Boeing and Stearman's distinctive, the Stearman-First by Boeing. It's back in front

## FINANCIAL

### Current Investment Surveys Highlight Airline Imponderables

Group of analysts of carriers' present timing position anticipates poor period in immediate future; write-off of equipment costs.

A number of syndicated analyses currently highlight the many uncertainties facing the airlines and receiving attention in financial circles.

Writing in the current issue of *Business*, Selig Axtell presents an extensive analysis entitled "Higher Rate Structure Essential For Airlines."

The conclusion reached is that the air carriers may receive needed action through higher mail compensation, or higher passenger fares, or a combination of the two. Reduced operating expenses will also prove beneficial. The airlines are experiencing a tightening squeeze on profit margins. The price of what they sell—passengers, mail and cargo services—has been coming down while the cost of doing business has been rising steadily.

The article further declares that narrowing profit margins were an evidence last year, but high load factors dulled the basic difficulties ahead. Further, much of the higher operating costs were attributed to the heavy depreciation expenses payable to the extensive expansion programs undertaken. Expansion programs have largely been completed. Now, in fact, retrenchment is the order of the day.

**Basic Elements Remain**—Current expansion, nevertheless, has failed to bounce back to anticipated level, declining load factors have exacerbated the difficulty. It is pointed out that the basic elements of the industry will remain until such time as the rate structure is brought into closer alignment with operating costs.

Despite the clamor in certain quarters for increased passenger fares, the author does not see this development as the place for Boeing the airlines. An increase in the passenger fare gives the airlines most likely when new equipment

is placed in service. The DC-8 and "Rainbow," for example, are expected to be higher-rate planes while the present rates with a relatively slower type of service may be maintained with the DC-3 and DC-4 equipment.

Writing in the *Analysis Journal*, published in July, 1966, the author states his belief that a number of airlines would petition the CAB for relief and seek higher mail compensation. Within recent weeks, Chicago & Southern, Braniff and Continental have so applied to the Board with the indications of more carriers to follow suit.

**Growing-Pain Period**—Standard & Poor's Office in its current "Outlook" again reviews the position of the industry. The analysis concludes that the industry is now experiencing a period of growing pains accentuated by the airport bottleneck, and a period of near earnings appears to be immediate ahead. The investment advisory service now takes the position that "While prospects have been dimmed to a considerable extent by the decline in prices of airline shares in recent months, the short immediate outlook weakens the relative market position of the group. Day earnings have been recovered from the leading stocks and a conservative attitude should be taken toward the less strongly situated equities."

It is interesting to contrast the current conclusion with what Standard & Poor's declared in July, 1965 (*Analyst's News*, August 12, 1965). At that time, the service declared that the airlines have turned the corner and that the industry is now in a position where earnings are considered likely for the second half. At that date, the service concluded that "... current profits of the group for below the 1964 highs, fully reflect the considerable earnings developments of earlier this year, but have not

yet begun to discount the brighter prospects in view."

Acceleration of an upward earnings trend was anticipated by the expected scheduling of additional four-engine equipment and by high passenger load factors. This circumstance never materialized.

**Early Optimism**—The Argus Research Corp. in a report dated July 21, 1966, had that to say about the airlines: "In our opinion, the poor earnings reported by the airlines during this expansion period must be placed in their proper perspective. It is our feeling that the worst phase of large expenditures has now passed and that, from here on, the additional four-engine equipment placed into service will produce greater profits for all the individual airlines. Our prediction is that net income in the second half of 1966 will establish record levels, and these earnings should continue until at least late in 1967. Since the turn in airline earnings has just begun we feel a more optimistic attitude toward the industry is warranted, and market positions weaknesses at the beginning of the transition period may now be re-established."

This was in July. Since that time as subsequent analysis and recommendations on the airlines have been available from Argus.

**Constructive View**—McGraw, Lynch, Perren, Fennel & Merrill in their current "Investment Outlook" continue to take a constructive view of the airline picture. This large New York Stock Exchange firm has generally been consistently optimistic about the airlines. In its current outlook, it declares that "the worst may be over."

To keep ahead of the times, most airlines are writing off equipment as fast as they can. For example, United's fleet of 33 DC-8s (at \$44,800 each) is written off at the rate of about \$1,900,000 annually. This rate big chunk off of future profits, but here the planes are written off before earnings will shape the benefit.

The analysis reports that the difficulties encountered may have a good side, if for no other reason than they taught a big lesson and may serve as the first real test of the airlines' management. McGraw, Lynch cheerfully concludes: "That last week at seemed pretty close that much of the trouble is a preview to the time when the airlines will again run up their earnings and high and handsome take-off."

## European Lightplanes Follow Principal American Trends

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a stretcher for an ambulatory patient. Propeller has top speed of 120 mph, 120 mph cruising speed, 840 mile range, weight empty of 2,060 lb and gross weight of 3,140 lb. Fokker is also developing a four-place pusher biplane plane along similar lines, called the *Perliner*.

Marcel Seelinger showed the four-place Model 501 low-wing monoplane, which sells for \$14,000 and features folding wings and a sliding cockpit enclosure of transparent plastic.

Rebe Aviation showed first models of the two-place T-35 and three-place T-37 of similar construction. Fifteen of the T-35 are under construction, priced at \$8,000, and ten of the three-place plane are being built at a price of \$11,000. Power plants are a 140-hp Renault and a 175-hp Mothor engine, respectively. Both planes are of plywood, have fixed conventional landing gear.

Other planes:  
Four-place wooden S-26 of the Seaside Industries pour Aeromarine, (SOPA) powered with 145-hp, Gray Major engine. Top speed 168 mph, cruising speed 150 mph, range 600 miles, span 34 ft. Gross weight, 2,300 lb.

Four-Grocholskian (nationalized factory) planes: The three- to four-place low-wing Zim 122 powered by a 94-hp Zim Beta 4 engine, with 125 mph top speed, 119 mph cruising speed, 630 mile range with three persons, and 150 lb useful load.

Tracy Bellair, two-place low-wing product of Avian Flyer, Belgian subsidiary of the British Fawcett Aviation Co., is first plane made in Belgium since the close of World War II. Plane is powered with 52 hp, Walter Mikron engine, cruises at 136 mph.

## Bendix Buys Towson Plant for Research

The radio division of Bendix Aviation Corp. has purchased from the Defense Plant Corp. the main plant at Towson, Md., which the company occupied during the war. The building, with 215,000 sq. ft. of floor space, and miscellaneous equipment, cost a reported \$1,700,000.

This brings Bendix investment at Towson to more than \$3,300,000, and includes, in addition to manufacturing facilities, a research and development laboratory and machine shop.



Four-place Nord 1091



Three-place Norella



Two-place Hilde 25-6



Three-place SE 210



Fokker Pioneer



Fokker Perliner



Zim Model 122



Marcel-Seelinger 501



Four-place Chordacord

## New Products

### Rotal Rpm. Regulator

An automatic synchronous device by Rotal Ltd., Gloucester, England, which governs engine rpm, is used to eliminate the "warping" characteristics of multi-engine transports.

The Rotal system is based on the notion of a "master" engine, the remaining engines being subject to continued automatic correction. This is accomplished by fitting an alternator and differential motor to each engine. Rotors of the differential or correction motors are connected through worm gears and crank pins to the engine's constant speed units. One winding of the outside rotor is electrically connected to the subject engine's own alternator and the other to the alternator of the master engine. The rotor of the correction motor will, therefore, in each case rotate at a speed proportional to differences in speed between master alternator and subject engine alternator. Through its connection with the constant speed control, rotor will then make necessary corrections to governing unit.

In addition, any engine can be selected as the master so that in the event of its failure the remaining engines can continue to function by selection of a new one.

### Rotaire Map Case

A compact case for easy handling in flight has been developed by Rotaire Engineering Products, Los Angeles 4, Calif., called the Rotaire Map Case. A simple turn of a knob reveals the map of entire route during a cross-country flight.

Measuring 12 1/2 x 16 x 3 1/4 in. and weighing 37 oz., case includes 20 ft. of any kind of air maps. The plastic film is specially treated for pencil notations. A "Navtab" at end of each shows distances and magnetic courses for each leg between principal cities and airports, already computed and ready to fly, saving hours of plotting.

One roll will hold 4,000 miles of regional and route charts; 2,000 miles of sectional maps; 4,000 miles of direction finding charts, or any combination of these plus a section of planning chart.

Now ready for delivery, Rotaire Map Cases will be sold through airports and aviation supply stores. Retail price, \$14.95; with recharge interval light, \$17.95.

# THE LABOR CRISIS

## ... "Absolute power corrupts absolutely"

THE NEW CONGRESS is going to overhaul the federal laws governing organized labor. If the election returns left any doubt about that, John L. Lewis has removed it by torturing the nation with his second soft coal strike in six months.

If, however, the overhauling is to get at the roots of our labor troubles, it must go further and deeper than most of the proposals would go. Indeed, it must not stop until it has dealt decisively with that most basic cause of devastating trouble—the entrenched monopolistic power of enormous international unions, now concentrated in a handful of union leaders. Industry-wide collective bargaining is one outgrowth of this power.

"Power tends to corrupt, and absolute power corrupts absolutely." That great truth, phrased by the historian, Acton, is as true of labor leaders as it is of business leaders, princes or potentates. It is also true that John L. Lewis and some of his fellow labor leaders now wield what approaches absolute power in their respective domains. Failure to recognize these facts and act on them can make a tragic mockery of the present opportunity to restore good order to our labor relations and our national life.

To render this opportunity the labor monopoly must be made a major target.

In the minds of many people, particularly in the business community, the root cause of our labor troubles is to be found in the National Labor Relations Act, erroneously called the Wagner Act. They feel that if they could get rid of the one-sided handling of a number of key labor problems provided by that act and its administrators, we would have the legislative part of the problem of creating good labor relations pretty well solved.

To be sure, there is common, long overdue, to balance up the lopsided treatment of labor relations by the Wagner Act and those who apply it. It has been so misinterpreted and applied as to deny free speech to employers. On occasion it has ex-

tended the special protection of the federal government to workers striking to force employers to break the law. It has done the same for workers striking to force the federal government to change its policy the way the strikers want it changed.

The Wagner Act has required employers to bargain with unions, but imposed no companion obligation upon unions to bargain with employers. It has given protection to workers who have broken their agreement by striking. It has been applied so as to break orderly lines of management by encouraging and giving special protection to union organizations of forces who, to do their work efficiently, must repress management. Abuses such as these should be cleaned up, and soon.

### Monopoly is the Target

But if perfection were attained in eliminating all of the abuses stemming from the Wagner Act, serious and grave as they are, the basic problem of establishing the legislative foundations of sane and sane labor relations in the United States would by no means be solved. John L. Lewis and his fellow labor leaders would, no doubt, be annoyed, but their power would not be seriously impaired. That power is derived from monopoly control of labor, just as in the case with any other kind of monopoly power, it will only be made subservient to the public interest by attacking it at the source and smashing it.

The way to do that is to apply the anti-monopoly laws to monopolies in the field of labor just as they are applied to business and industrial monopolies. At the same time more vitally should be pumped into these laws all along the line.

When our basic anti-monopoly law, the Sherman Antitrust Act, was passed in 1890, it was designed to apply to economic monopolies of all kinds, and was so held by the courts. Organized labor sought exemption from this law, largely on the ground that its bargaining power was weak, as compared with that of industrial corporations. In recent decisions, a majority of the United States Supreme Court

justices have held that, when combined with the Clayton Act of 1914, the Norris-La Guardia Act of 1932 gives organized labor virtually complete exemption from the antitrust laws.

In the meantime, the relative weakness in bargaining power which was made the excuse for exempting organized labor from the antitrust laws has become a myth. In soft coal, John L. Lewis is the monopolist. Through his United Mine Workers he controls about 90% of the resource. No one of the thousand or more highly competitive companies engaged in soft coal mining controls more than about 5% of the output.

In steel the monopoly control is that of Philip Murray's United Steel Workers whose organization represents well over 80% of the production workers in that industry. United States Steel, the enterprise "giant," controls only about one-third of the steel making capacity. In automobiles the United Automobile Workers represent about 90% of the production workers. A year ago the union's officers flaunted their monopoly power by announcing plans to pick off one automobile manufacturer after another by a series of centrally controlled strikes.

### Industry-Wide Bargaining

Confronted by the rise of government-fostered monopoly power in the hands of organized labor, employers in some industries have sought to match it by joining together for collective bargaining on a more or less industry-wide basis. In other industries, notably steel, the federal government, through the War Labor Board, took the lead in forcing a pattern of industry-wide bargaining. Believable by a myriad of cases, the Board thus sought to settle scores of them in the steel industry by one action.

It is easy to understand how an employer, confronted by an industry-wide monopoly of labor, would be tempted to join with his fellow employers in an industry-wide bargaining group. In that way he might see a chance to establish something like equality in bargaining power.

However, if the employers' bargaining group were as effective as the union in creating a monopoly set-up, it would merely confront one monopoly with another. That, in turn, would heighten the chances of having either a devastating head-on collision as a result of failure to agree, or having the two monopolies reach an agreement at the expense of the consuming public.

Actually, however, the chances that employers can create an industry-wide bargaining group as

tight as that created on the side of labor by union organization are virtually none. For if a group of employers were to agree to shut down an union or take other united steps to balance the bargaining power created by the threat of a monopolistic union to strike, they would unquestionably find themselves on the receiving end of an indictment for violation of the federal antitrust laws.

### To Break the Monopoly

Thus, both from the point of view of the public and the point of view of the employer, industry-wide bargaining is no effective effort to the monopoly power created by industry-wide unions.

The only way to cope with this monopoly power is to subject it to the anti-monopoly laws in the same way business and industrial management are subjected. In the present industry-wide labor monopolies would be cut down to size size, possibly by limiting the percentage of workers in any industry who are permitted to belong to a single labor organization.

Also application of anti-monopoly laws would clean out local pockets of labor monopoly which block the way of industrial progress. As matters stand, the freedom of unions from control by the antitrust laws permits organized workers in one city to refuse to install equipment shipped in from another city, thus establishing private tariff walls. It also permits organized workers to refuse to install or work on materials made by other workers whose union affiliates, or lack of it, they do not like.

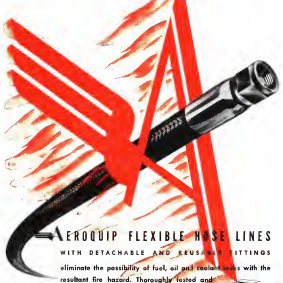
If the anti-monopoly laws were applied to organized labor, boycotts of this sort would be outlawed. In the aggregate they now make a tremendous toll for no legitimate purpose. But primarily John L. Lewis and a handful of his fellow labor leaders might be cut down to a size that can be safely accommodated by the American democracy. If that is not done, the best great opportunity to give industrial and political democracy a chance to work, in its last great stronghold, will be lost. From such a tragic turn of events no one would lose more than the American worker.

*James H. McGraw, Jr.*

President McGraw-Hill Publishing Company, Inc.

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## FIXED BASE OPERATIONS

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### Court to Weigh Rival Plans For Taylorcraft Reorganization

Lightplane manufacturer will be liquidated unless acceptable scheme is submitted at stockholders and creditors meeting, referee says.

By ALEXANDER MCGURELY

Plans for reorganization of Taylorcraft Aviation Corp., Alliance, Ohio, were to be weighed in federal court in Cleveland today (Dec. 14), against advisability of liquidating the company's assets. Carl D. Friebohn, special referee of Federal District Court, had last week the company "tentatively" would be liquidated, "unless an acceptable reorganization plan was submitted at the Dec. 14 meeting of stockholders and creditors he had called. He described plant maintenance as "very expensive."

**Plan Proposed**—Main chance for survival of the one-time third largest lightplane producer, lay in a plan which was being studied by a committee of Taylorcraft dealers and distributors at Kansas City last weekend.

The group, headed by John T. Mann, Los Angeles distributor, and representing a considerable portion of the 800-and Taylorcraft dealers and distributors, had met previously in Alliance. Following that meeting they attracted Maurice Feldman, New York attorney, to draft a reorganization proposal, for further study in a closed session beginning last Friday at Kansas City.

The company in its petition for reorganization under Section 13 of the Federal Bankruptcy Act, listed assets at \$4,903,959 (book value) and liabilities of \$2,887,120. The company is now the defendant in a \$1,600,000 damage suit, filed by C. G. Taylor, assistant head of the company, over nearly \$600,000 to the Government, and \$24,000 to employees in back pay.

**Plan Considered**—Factors expected to be considered by the dealer's reorganizing committee included possibilities of obtaining outside capital to put the company

back on its feet, advisability of re-entering the personal plane market competition during a period of slumped sales, satisfying requirements of other creditors and stockholders, planning for sale of new management, and others.

A second plan, favored by Bob Russ, Taylorcraft president, is also expected to be presented. Russ had asked the court to be contained in the management of the company when the petition for reorganization was filed. The court assigned Friebohn and H. Austin Houchens, disinterested trustee, to study the company's operations and report back. They recently filed a report stat-

ing that "no reorganization seems possible." Details of the base plan have not been announced.

The dealer's reorganization plan, reportedly asked for a cooperative organization financed by the dealer's resources, to take over the plant and resume operations. **Advisee Available**—It is understood that business interests in the little town of Alliance are active in efforts to continue the plant's operations since it is one of the largest if not the largest industry there. Company assets in addition to the main Alliance plant which has approximately a quarter-million square feet of floor space, available or under construction, include a smaller sub-assembly plant in Cleveland. At the peak postwar operation the plant employed approximately 1,800 of Alliance and about 500 at Cleveland.

At the time operations ceased the company was manufacturing only one basic model, the two-place 145 hp. BC112, offered in several price ranges as standard, deluxe and custom models, variations being mainly in equipment. A four-place 150 hp. Taylorcraft Model 14 had received its CAA approval, and testing for it was underway. Taylorcraft's first multi-engine plane, the two-place 150 hp. Model 18, was also under development.



### GRASSHOPPERS:

First postwar reunion of the original Grasshopper Pilots, who demonstrated the utility of the aviation telephone for making instant air, and passed the word for the outstanding record of *Aviation*, *Paper*, *Aircraft* and *Taylorcraft* in World War II brought this group together in Washington. Left to right: Fred van Horn Greenleaf, aerial photographer, John E. P. Morgan, manager, Aircraft Industries Association, who arranged the original trip, Tom Hall Miller, William D. Brookman, Henry Vaux, Harold Paper, Henry Kubicki, and Lee M. Smith, *Aerospace Aircraft* executive vice-president, second row, T. W. Wolf, *Paper Aircraft* vice president, T. Clay, M. C. Chubbuck, Tom Paper, W. P. Paper, Jr., *Paper Aircraft* president, Charles Helbert and J. W. Miller.





## Disputed Airmail Formula

The following table shows the formula used by the Sen-Air Commission—and disputed by Air Transport Association—in computing airmail rates.

Total operating expenses	\$346,277,590.66
Deduct expenses of:	
Passenger Service	\$30,418,812.95
Traffic and Sales	25,497,538.90
Advertising and Publicity	7,986,246.50
Gen'l and Administrative	21,731,889.28
Total cost of transporting mail	\$104,604,086.53
Deduct total cost of transporting mail by:	
Total revenue ten-mile flown	\$917,700,877.09
To obtain the cost per ten-mile of transporting mail (ten-mile)	\$1.76
Subtract that cost from revenue per ten-mile paid (ten-mile)	\$5.71
The result is subsidy contained in rate (ten-mile)	\$11.82
Multiply subsidy by total U. S. mail ton miles flown	\$6,049,612.00
Result is total subsidy payment	\$71,869,533.60
Compare with total U. S. mail revenue paid	\$18,379,645.67

the Commission's "cost of transporting mail" figure should have been divided by the total ten-mile of mail flown (\$6,049,612) to obtain the cost per ten-mile of mail operations.

Webb contended that "it is statistically accurate" to obtain the cost per ten-mile of handling mail and other property over the airline system by dividing the total cost of operating the system, minus only special items allocable exclusively to passenger service, by the

total ten-miles of all traffic flown.

Tipton interpreted the Commission's study as showing that the airlines paid \$184,690,000 to transport the mail and received a revenue for the operation from the government of only \$25,960,000.

Had Sen-Air's study accepted the proposition that ten-mile costs of operating all airline service in the same, Webb pointed out, it would have taken the total operating expense of \$346,908,690, divided it by the total ten miles

flown and found that the average ten-mile cost of airline operations is 39 cents.

"This would have shown," he commented, "that the airlines received a 14-cent per ten mile subsidy, or a total mail subsidy for the year of \$1,900,000."

## Two Airlines Ask More Mail Pay

Bozell and Continental are suing costs and lowered revenue as factors accounting for higher mail rates.

During past several years in the cost of labor, materials, equipment and fuel, Bozell Airways and Continental Air Lines have followed the lead of Chicago & Southern in asking for higher mail pay.

The two airlines asked despite reports filed with CAB a few days earlier showing substantial increases in airmail volume during the first month under the new 5-cent postage rate. Their requests coincided with further indications that the newly-estimated fuel surcharges will ask considerably more than the 20 cents a plane mile mail pay currently given Pioneer Air Lines, only local service operator for which a rate has been set.

Revenues insufficient—Bozell's petition to CAB states that the company's operating revenues are insufficient to produce a fair and reasonable rate of return on its investment. "Passenger income declined during recent months as costs went up," Bozell declared, adding that initiation of the 5-cent rate Oct. 1 only partly offset the overall postage slump in airmail volume.

Continental said that in its opinion operating expenses will continue to rise for some time, thus compounding the difficulties which forced a 25 percent reduction in CAL's scheduled rates and a 12 percent cut in personnel during October. Accounting Continental's loss of revenue were the 20-day TWA pilot strike, which resulted in a substantial drop in interline traffic, and a heavy snowstorm which tied up all operations at Denver for more than four days earlier in November.

Bozell Asks 25 Cents—Second of the same figures certified in 1946 to file for mail pay in Southwest Airways Co., which has sought a temporary rate of 25 cents a plane mile over newly-adjusted AAM 14. The California car-

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## AIRLINE SOLVES HOUSING PROBLEM:

Twenty prefabricated bungalows like that shown above are being flown to Alaska by Northwest Airlines to house employees stationed at Anchorage en route to the Alaska section of NWA's coastal route to the Orient. Valued at \$12,000 each when set up on their selling foundations, the houses will remain NWA property. Each house, completely furnished, will have no rooms and bath and be situated against Alaskan winters. They are made at Shenyang Falls, W. Va., by Williamson Co. for Gamble-Stevens, Inc.











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"As a result of a search for transmitters whose power, frequency coverage and reliability would provide adequate communication service on a system-wide basis," said K. L. M.'s North American Division Technical Manager recently, "the Collins 17H-2 Autotune equipments were chosen. These units are installed in all K. L. M. DC-4's and Constellations."

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